

Broadband Over Power Lines (BPL) Tutorial

Executive Summary

Broadband over Power Lines (BPL) is a relatively new technology that is gaining in popularity since it can provide more efficient management of the power supply system, and provides customers another option for high-speed broadband services. BPL can improve the reliability of the electric distribution system in Illinois through advanced utility services while simultaneously providing another high-speed broadband internet option. Representatives from Ameren, an electric utility; the City of Princeton; Navigant Consulting; and Current Technologies, a provider of BPL equipment and networks, presented information on different aspects of the technology.

BPL offers benefits to both utilities and customers through always-on utility services and internet access. Ameren representative, Greg Lovett, described the benefits to utilities and Ameren's desire to use BPL to leverage the capabilities of their facilities through smarter utilization of resources.

- Utility Applications Include
 - Outage management and restoration
 - Remote monitoring of sub-stations
 - Automated Meter Reading (AMR) that will provide better price signals to customers
 - Control of appliances within a household for greater energy efficiency
 - Monitoring of the overall security of the power system
- Ameren's customers will ultimately see savings from a more efficiently run electricity grid

Don Harker of Navigant Consulting discussed the benefits of BPL to customers.

- Increased broadband service in those communities in Illinois that are underserved or not served at all
 - High speed internet service for business, education, and home use
 - Broadband access from every electric outlet in every room
 - Security applications
 - Real-time applications like medical conferencing for asthma patients in distress

The City of Princeton has been running a BPL trial for 60 days. The trial was set up in response to losing its largest business (Ingersoll-Rand) because the town lacked sufficient broadband service. Princeton expects to deploy commercially in September.

- Jason Bird, Superintendent of Electric & Telecommunications, stated that Princeton's citizens are its stockholders and it repays them with actual and potential jobs and investments.
- No tax dollars were used for the deployment in Princeton
- Citizens have been rewarded with a \$6.5 Million investment in the city and an increase in jobs through Ingersoll-Rand

Current Communications represents the future of BPL technology. Current Communication's Vice President Jay Birnbaum discussed future commercial deployments and the new generation of BPL equipment.

- \$100 Million invested by Goldman-Sachs, Google and Hearst
- The HomePlug™ device, a BPL modem, is inexpensive, available, and easy to use as the conduit for broadband access by consumers
 - Packard-Bell computers are now being shipped with HomePlug™ installed
- Current will soon start a pilot with the Los Angeles Department of Water & Power, the largest municipal utility in the country

The obstacles to deployment of BPL, and ways they can be easily mitigated:

- Frequency Interference from BPL emissions is being dealt with technically through a technique known as notching and through FCC rules that prioritize emergency uses and accommodate amateur radio operators
- State and local governments are responsive to utilities' concerns about regulatory uncertainty
 - Regulations need to be put in place to provide a secure atmosphere for utilities and vendors to move ahead with manufacturing and installation of BPL
- Ratepayers will not bear all of the financial burden of BPL
 - Improvements in electric grid efficiency will ultimately lower customer rates.
 - Funds are set aside in the new Energy Bill for improving metering technology
 - Grants are available through homeland security for investment in securing the infrastructure